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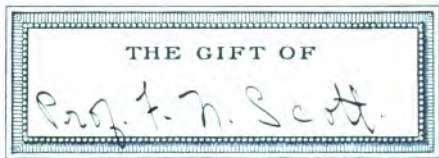
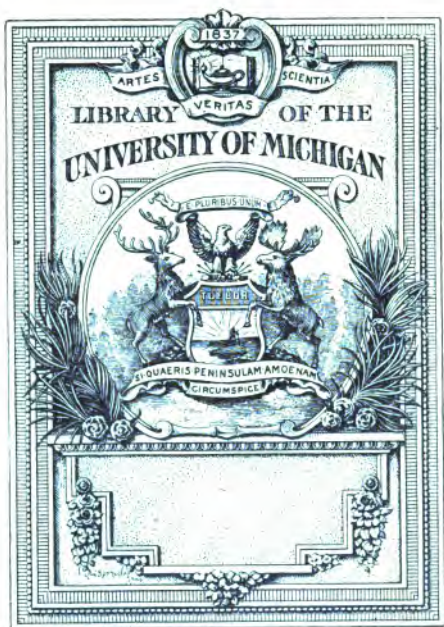
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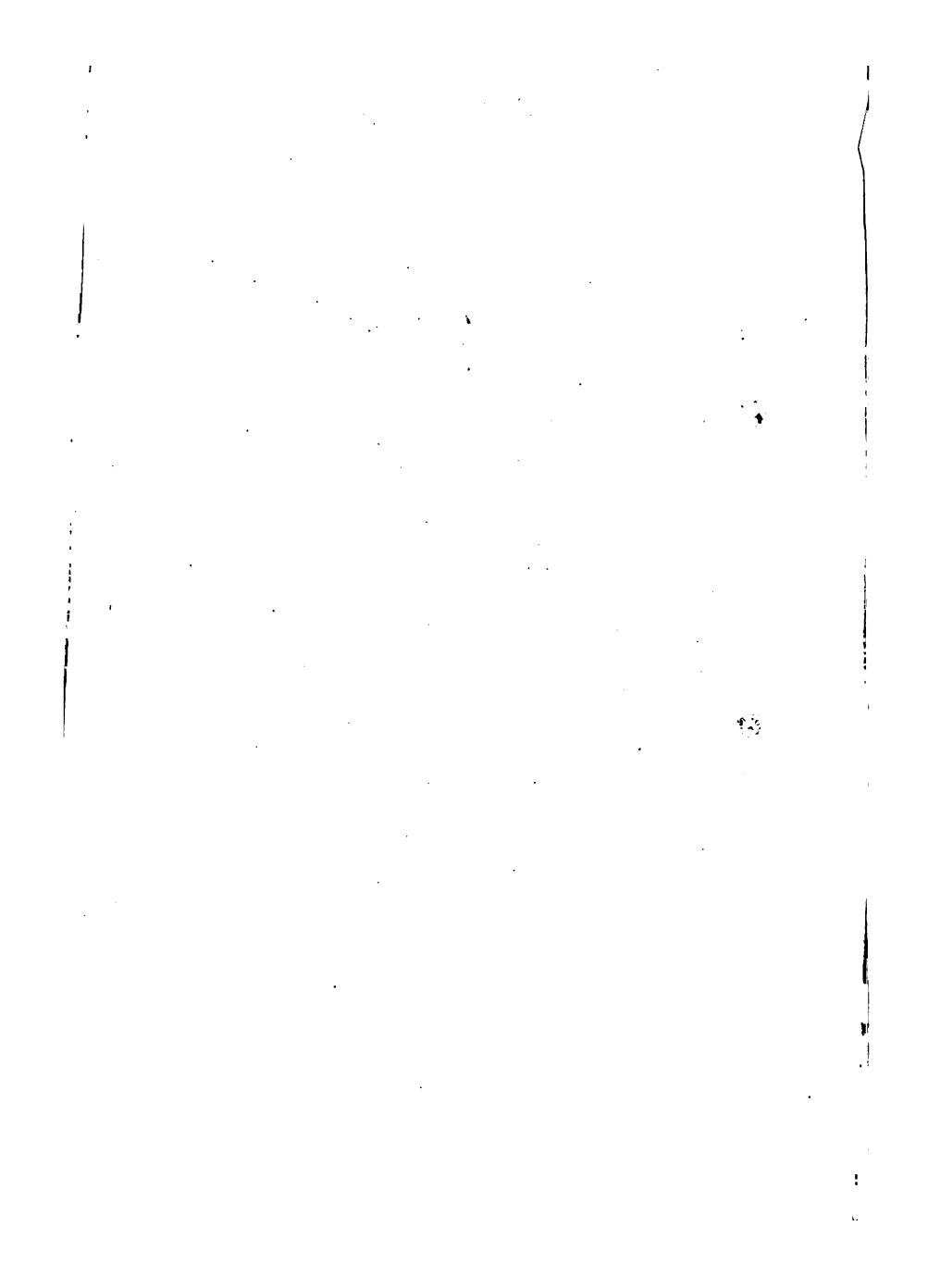
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COURSE OF STUDY.



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MATHEMATICS.

26 May, 1911
Arithmetic ; is the science of numbers, not the art of "figuring." This art is secondary and subsidiary. Through the study of mathematics, children should acquire a conception of number and dimension, which are the content of the study. They express their conception of this content through the art of "figuring," which constitutes the "Form" of the subject.

Mathematics should introduce the child to an accurate knowledge of the physical world. It should always deal with real things rather than with the signs of things. This is particularly important in the primary grades. The two most common errors in the teaching of arithmetic are, first, the limiting of its application too closely to commercial transactions, thus belittling the science ; and second, dealing with figures, characters and signs rather than with real quantities.

In the primary grades all work should be concrete. The computation should be based upon dealings with actual things, measured or counted. Children naturally recognize the various relations expressed by addition, subtraction, multiplication, division and partition upon such numbers as they can readily handle and comprehend. Going through the processes of addition or subtraction upon very large numbers is for young children meaningless.

All schools should be supplied with scales for measuring, with measures of capacity and with rules, and much of the elementary work should be the actual use of these tools. Illustration by means of pictures also tends to make the work real. As soon as children comprehend the relations through actual experiment or illustration, they can be led to abstract calculation, but in the primary grades this should be confined to numbers within their comprehension. More should be made of dimension than is commonly made. Many of the subjects usually treated in arithmetic have a

limited practical value, being either matters of special business concern or belonging to the sphere of higher mathematics, and have been omitted from this course.

MATHEMATICS.

FIRST GRADE, "B" CLASS.

Numbers 1-6.

Operations.—Addition, subtraction, multiplication, division, partition. Halves of 2, 4 and 6. Thirds of 6. Halves of 1.

Recognition and estimates of capacity of units of volume, as pint, quart, gallon; the number of feet in a yard.

All work concrete.

If pupils have had proper kindergarten training the present outline can be adapted to their degree of proficiency.

FIRST GRADE, "A" CLASS.

Numbers 6-12.

Operations.—The same as given above for Class "B."

In addition, units of volume in dry measure and a study of relative capacity.

Halves of all numbers studied.

Fourths of 4, 8; thirds of 3, 6 and 9.

Halves, quarters and thirds of 1.

Use of figures to represent numbers.

Concrete work.

Telling time by clock.

SECOND GRADE, "B" CLASS.

Numbers.—Review of first year's work. Advance 12-20.

Operations.—Addition, multiplication, subtraction, division, partition; short distances in feet or yards.

Subjects.—Lines, as yard, foot, inch; areas, as square

yard, and number of square feet composing the same. Number of square yards or square feet in convenient surfaces.

Dozen and half-dozen.

Pound and ounces composing the same.

Practical problems as to the cost of paper, slates, pencils, food and clothing.

Change of yards and feet to feet, and the reverse.

Like operations with gallons, quarts and pints, bushels and pecks.

Halves of all numbers studied.

Thirds and fourths of all numbers capable of equal division.

Relations of halves and quarters, thirds and sixths of 1. Concrete work.

SECOND GRADE, "A" CLASS.

Numbers.—Review of work of previous class. Advance through 30.

Operations.—Same as in "B" Second.

Subjects.—Same as in "B" Second.

In advance take simple problems in addition, multiplication, subtraction and division of compound numbers; also notation and numeration through 30, using bundles of sticks in developing the tens. Have actual operations in building, in adding and subtracting performed before representing work by figures.

All abstract and drill work should follow concrete work.

In fractions of 1, change of halves to quarters and eighths; thirds to sixths and ninths, using square and circle for purposes of illustration.

Study of time table, divisions of day, parts of the hour, time of day, days in week or month, weeks in month and months in year. Written work in addition and subtraction involving carrying.

THIRD GRADE.

"B" Class.—Numbers through 50.

"A" Class.—Numbers through 100.

Operations.—Division, partition, subtraction, multiplication, addition. Notation and numeration, both Roman and Arabic, through 1,000; development of tenths and hundredths; addition and subtraction of simple fractions.

Subjects—

1. Compound numbers.

Actual measurements by inches, feet, yards and rods. Drawing diagrams and maps to scale, $\frac{1}{2}$ inch to a foot, etc. Measurements of the boundaries of rectangles. Square inches, feet and yards on surfaces of tables, boxes, boards, floors, etc. Cost of carpeting and papering. Buying and selling of quantities of liquids; pints, quarts, gallons, barrels, etc. Introduce problems involving change of denominations.

Apply the same processes to units in dry measure. Minutes, hours, days, months and years.

Practice in telling time of day.

Money, buying and selling; wages for labor.

2. Aliquot parts, after 100 is developed.

$\frac{1}{4}$ or .50, or 50%; $\frac{1}{2}$ or .25, or 25%; $\frac{3}{4}$ or .12 $\frac{1}{2}$, or 12 $\frac{1}{2}$ %; $\frac{1}{5}$ or .33 $\frac{1}{3}$, or 33 $\frac{1}{3}$ %; $\frac{1}{6}$, $\frac{2}{3}$, etc.

3. Fractional parts of 1.

Thirds and ninths.

Thirds and sixths.

Halves and sixths.

Halves and eighths.

Fifths and fifteenths.

Halves and quarters.

Use square and circle for purposes of development and illustration. For instance: A man sells $\frac{1}{4}$ of his land to one man and $\frac{1}{4}$ to another. What part or parts were left? What part or parts sold?

Take examples from science study.

27	$\begin{cases} 3 \times 9 \\ 9 \times 3 \end{cases}$	35	$\begin{cases} 7 \times 5 \\ 5 \times 7 \end{cases}$	44	$\begin{cases} 11 \times 4 \\ 4 \times 11 \end{cases}$	56	$\begin{cases} 7 \times 8 \\ 8 \times 7 \end{cases}$	77	$\begin{cases} 11 \times 7 \\ 7 \times 11 \end{cases}$
28	$\begin{cases} 7 \times 4 \\ 4 \times 7 \end{cases}$	36	$\begin{cases} 6 \times 6 \\ 3 \times 12 \\ 12 \times 3 \end{cases}$	45	$\begin{cases} 5 \times 9 \\ 9 \times 5 \end{cases}$	60	$\begin{cases} 6 \times 10 \\ 10 \times 6 \\ 12 \times 5 \\ 5 \times 12 \end{cases}$	80	$\begin{cases} 8 \times 10 \\ 10 \times 8 \end{cases}$
30	$\begin{cases} 3 \times 10 \\ 10 \times 3 \\ 5 \times 6 \\ 6 \times 5 \end{cases}$	40	$\begin{cases} 9 \times 4 \\ 4 \times 9 \\ 4 \times 10 \\ 10 \times 4 \end{cases}$	48	$\begin{cases} 8 \times 6 \\ 6 \times 8 \\ 4 \times 12 \\ 12 \times 4 \end{cases}$	66	$\begin{cases} 11 \times 6 \\ 6 \times 11 \end{cases}$	88	$\begin{cases} 8 \times 11 \\ 11 \times 8 \end{cases}$
32	$\begin{cases} 8 \times 4 \\ 4 \times 8 \end{cases}$	50	$\begin{cases} 5 \times 10 \\ 10 \times 5 \end{cases}$	70	$\begin{cases} 7 \times 10 \\ 10 \times 7 \end{cases}$	96	$\begin{cases} 8 \times 12 \\ 12 \times 8 \end{cases}$	99	$\begin{cases} 9 \times 11 \\ 11 \times 9 \end{cases}$
33	$\begin{cases} 11 \times 3 \\ 3 \times 11 \end{cases}$	54	$\begin{cases} 6 \times 9 \\ 9 \times 6 \end{cases}$	72	$\begin{cases} 9 \times 8 \\ 8 \times 9 \\ 6 \times 12 \\ 12 \times 6 \end{cases}$	100	10×10		

Give much drill on multiplication table at each step, using all factors or numbers as high as studied. Confine the work of development to composite numbers.

THE MULTIPLICATION TABLE.

After children are taught to draw to a scale, develop the facts in the multiplication table by the use of rectangles. Thus: Children draw a figure 6 by 9 inches, dividing it into square inches and finding all possible combinations in it.

Written work in addition, subtraction and multiplication, involving carrying.

After these combinations are properly developed see that children learn them perfectly.

Draw two parallel lines 4 inches long and 1 inch apart.
Divide upper line into halves, lower line into sixths:

How many sixths in $\frac{1}{2}$? In $\frac{2}{3}$?

How many sixths in $\frac{1}{3}$? In $\frac{2}{3}$?

How sixths in $\frac{1}{2}$ and $\frac{1}{3}$? etc.

ILLUSTRATIVE DRILL WORK.

30.

1. $6 \times 5 =$ $5 \times 6 =$ $15 \times 2 =$ $2 \times 15 =$ $3 \times 10 =$
 $30 \div 10$ $30 \div 5 =$ $30 \div 6 =$ $30 \div 2 =$ $30 \div 15 =$ $1-10$ of 30
 $10 \times 3 =$ $1-5$ of 30 = $1-6$ of 30 = $\frac{1}{2}$ of 30 = $1-15$ of 30
 $30 \div 3 =$ $\frac{1}{2}$ of 30 =

Make problems to illustrate $30 \div 6$, $1-6$ of 30, etc.—

2 Partition.

1 Division.

28.

- $7 \times 4 =$ $4 \times 7 =$ $14 \times 2 =$ $2 \times 14 =$
 $28 \div 4 =$ $28 \div 7 =$ $28 \div 2 =$ $28 \div 14 =$
 $\frac{1}{2}$ of 28 = $1-7$ of 28 = $\frac{1}{2}$ of 28 = $1-14$ of 28 =

2. $\left\{ \begin{array}{l} 10 \\ 18 \\ 8 \end{array} \right\}$ Add another number to make 28.
 $28 \left\{ \begin{array}{l} 20 \\ 9 \\ 19 \end{array} \right\}$ 10, 9, 18, 20, 7, 11, 2
 $\left\{ \begin{array}{l} 20 \\ 9 \\ 19 \end{array} \right\}$ 23, 21, 15, etc.

"B" FOURTH.

1. Notation and numeration through two periods.
2. Drill in rapid and accurate mechanical work in addition, subtraction, multiplication and short division.
3. Give combinations such as 23 49, 96 57, and require the work to be performed mentally.
4. Continue drawing maps and plans to scale, finding dimensions from them.
5. Give continual practice in the applications of denominate numbers, buying by the bushel, gallon, etc.,

and selling by the peck, quart, pound. Reduction ascending and descending.

6. Continue work with halves, thirds, fourths, fifths, sixths, sevenths, ninths and tenths, giving illustration and mental work, and using interchangeably the terms per cent. and hundredths.

Draw problems from science work and from geography and history; *e. g.*, comparative weights of equal bulks of different minerals studied.

Linear Measures—Lengths of rivers, roads, journeys.

Drawing to scale.

Area—River basins, countries, continents.

Values of products, food, clothing, etc.

Time—Periods consumed in journeys.

Comparative periods in history; *e. g.*, time since Revolution, compared with life of man, of the children, with a year; that the children may acquire an accurate sense of time spaces.

“ A ” FOURTH.

1. Notation and numeration continued.
2. Same as (2) in “ B ” Fourth.
3. Teach long division. Insist upon short division when the divisor is less than 13, and upon multiplication by one operation when the multiplier is 10, 11 or 12.
4. Amplify topics of 4, 5 and 6 of “ B ” Fourth work.
5. Give much practice to reducing fractions to any given denominator and in reducing several fractions to a common denominator.
6. Using some device similar to that employed in third grade, develop addition and subtraction of fractions.
7. Review tables of denominate numbers. Problems from science, geography and history, comparative lengths, areas, times, ages, armies, population expressed by use of whole numbers and fractions and made the basis of numerous calculations of various sorts.

8. Cost of production of various articles; cost, how divided.

" B " CLASS, FIFTH GRADE.

Final review of notation and numeration.

Final review of tables of denominate numbers, with applications of the same.

Fractions completed.

" A " CLASS, FIFTH GRADE.

Reduction of decimals.

Measurements of plane surfaces.

Operations with compound numbers.

" B " CLASS, SIXTH GRADE.

Decimals completed.

United States money completed.

Business problems requiring use of decimals, mensuration, United States money.

Forms of bills.

Principles of percentage.

" A " CLASS, SIXTH GRADE.

Percentage, simple interest.

Continuation of business problems as in " B " Class.

Review of denominate numbers.

Calculation of dates.

" B " CLASS, SEVENTH GRADE.

Percentage applied to insurance, commission, bank discount and taxes.

Problems in simple interest.

Business problems involving various principles already learned.

Frequent practice in rapid computation.

"A" CLASS, SEVENTH GRADE.

Simple proportion. Square root, and its applications.
Short methods. Review drills.

"B" CLASS, EIGHTH GRADE.

Arithmetic reviewed : fundamental operations, fractions—
simple, compound, denominate numbers.

"A" CLASS, EIGHTH GRADE.

Arithmetic reviewed : percentage, interest, ratio and pro-
portion and square root.

ALGEBRA.

"B" CLASS, EIGHTH GRADE.

To simple equations.

"A" CLASS, EIGHTH GRADE.

Simple equations.

BOOK-KEEPING.

"B" CLASS, EIGHTH GRADE.

Written common business forms.
Meaning and use of the terms "Debtor" and "Creditor."

"A" CLASS, EIGHTH GRADE.

Simple accounts.
Day book and ledger.

READING.

The objects of the reading lesson are two. First, to give the pupil the power to secure from the written or printed page an intelligent and appreciative knowledge of the thoughts of authors as recorded and expressed in literature. Second, to give the pupil the power to impart to others the knowledge thus obtained in a clear, sympathetic and pleasing manner. The teacher should always bear in mind that the content of the reading lesson is of more value than its form, and that an appreciation of good literature is worth more than the mechanical ability to read; hence, reading lessons should always be upon matter of interest and worth to the child and never upon idle combinations of words for the mere sake of the words. Children from the very first should learn to read by reading something worth while, and not by calling words merely.

Reading matter should always be adapted to the capacity of the child, but it is better that it be a little beyond him than a little beneath him. In every grade he should read the best literature that he is capable of appreciating.

Careful attention should be paid in all grades to correct enunciation and pronunciation, to proper use of the vocal organs and of the organs employed in breathing. Ease, naturalness and a clear, resonant tone should be sought. Frequent exercises in breathing and the carriage of the body and in the vocalization of both vowels and consonants should be employed when needed.

"B" CLASS, FIRST GRADE.

Method.—Of the different methods of teaching beginners to read, no one contains all the excellences. The best points of all should be employed, but it is important to select the proper unit, which is not the sound of the letter, nor the word, but the sentence. Children should begin by reading the sentence. Later the sentence should be analyzed into words and the words into their sound elements. No one of these three methods should be neglected, but the order indicated should be carefully preserved.

Begin with the sentence. As soon as possible, call attention to the words composing it, which the children will at first recognize through memory. After some weeks of such reading, synthetic and analytic exercises in the sound elements of words should be introduced and regularly continued through the primary grades. These should be systematic and thorough, leading to word building and the use of the dictionary. Teachers who are not familiar with this method are expected to become so as rapidly as possible. Where this method is employed, the first reading lessons should be based upon observations of nature and upon poems and stories used in the same connection, also stories told for the sake of their literary or ethical merit may be employed in the same manner.

The first lessons should be in script upon the blackboard. They should be carefully prepared, so as to be progressive in thought and style, and should be preserved. Each school should be supplied with a copying pad of some kind and the blackboard lessons preserved, should be copied upon leaflets and put into the children's hands for review lessons.

By the end of the first semester pupils should have read at least half of two First Readers or an equivalent amount.

" A " CLASS, FIRST GRADE.

Lessons prepared by the teacher or selected from reading books based upon the study of plants, animals, the human body and literature.

During this semester at least two First Readers should be completed or an equivalent amount of matter read.

The language work should be closely related to the reading during the primary grades.

" B " CLASS, SECOND GRADE.

Lessons selected from First and Second Readers and supplementary Readers, based upon topics in nature study and upon literature appropriate to the grade.

In this class pupils should read the first half of three Second Readers or an equivalent amount.

"A" CLASS, SECOND GRADE.

Lessons selected from Second Readers and supplementary Readers, appropriate to topics in nature study, history tales and selections from good literature used in this class.

Pupils should complete two Second Readers and much supplementary reading matter.

"B" CLASS, THIRD GRADE.

Lessons selected from Third Readers, appropriate to the work in other departments.

Pupils should read an equivalent of half of three Third Readers and much supplementary matter.

"A" CLASS, THIRD GRADE.

Lessons selected from Third Readers and supplementary Readers that may be readily correlated with work in other departments, especially nature study, geography, history and literature.

At the end of this grade pupils should be able to read readily and in pleasing style any matter whose thought and language is within their comprehension.

The sound drill should have given them power to call new words and the use of the sentence as a unit should have enabled them to grasp the thought of the author readily.

FOURTH GRADE.

From this time on the reading matter should be carefully selected good literature adapted to the mental powers of the children and material relative to the other subjects of the curriculum.

Children should now be able to read, not for the sake of reading, but for the sake of what they read. While continued attention should be paid to the art of reading, the pupils should always realize that they are reading as adults read—to get at the thought of the author, and not for the sake of going through with the school exercise.

"B" CLASS, FOURTH GRADE.

Matter selected from Fourth Readers, from the supplementary Readers and from good literature, relating to the other topics in the curriculum, particularly nature study, geography and history.

"A" CLASS, FOURTH GRADE.

Same as "B" Class.

Historical and mythological tales of Greece and Rome are here appropriate.

"B" CLASS, FIFTH GRADE.

Matter selected from geographical, historical and other Readers, and from good literature, appropriate to the work of the grade.

Stories and poems by American authors relative to the early history of the United States are appropriate here.

"A" CLASS, FIFTH GRADE.

Good literature appropriate to the work of the grade, particularly poems and stories relating to the Orient and to Egypt.

"B" CLASS, SIXTH GRADE.

Much reading matter selected from standard authors and, in so far as possible, correlated with the work of the other departments, particularly nature study and the picturesque features of geography.

"A" CLASS, SIXTH GRADE.

Much good literature appropriate to the work of the grade, especially historical tales and poems.

"B" CLASS, SEVENTH GRADE.

Literature, especially by American authors, and relating to periods of American history,

"A" CLASS, SEVENTH GRADE.

Same as "B" Class.

"B" CLASS, EIGHTH GRADE.

Literature selected from English authors relating to English history.

Good literature in general.

"A" CLASS, EIGHTH GRADE.

Same as "B" Class.

The literary excellence of selections read should be noted.

PHONETIC DRILL.

Systematic phonetic drill should be given through the primary grades as indicated in the outline for reading. This should not be made the basis of the reading lesson, but its auxiliary. Simple rules should be given as they are needed by the child to enable him to pronounce new words. Teachers will find it of great use to develop words having similar sounds in groups or families. The best classification is that based upon similar vowel sounds and upon rhymes.

The aim of this drill is to enable the child to recognize new words at sight. If it is found necessary, supplementary instruction containing lists of words in families will be sent to the schools.

PHONETICS.

Essentials.—

1. Sounds.
2. Characters to represent them. (a) Letters. (b) Diacritical marks.

This latter is an essential because of the fact that many letters have more than one sound.

3. The laws, if any, governing pronunciation.

Use of diacritical marks in distinguishing essentials.

Laws to be learned by comparison and classification of words:

THE MONOSYLLABLE.

Short sound of the vowel	{	at the beginning.
		in the middle.
Long sound of the vowel	{	at the end.
		two vowels present.

a before r, lf, lm, um is long Italian a (ā).

a before sk, sp, ss, ft is the short Italian a (ă).

oi and oy, ou and ow, diphthongs. To be diacritically marked when not.

What is true of a monosyllable is true of the accented syllable. Mark no other syllable.

Teach accented syllables to Third Grade children.

a before ll, lk, w, wk is a (o in or).

Diacritical marks used only with—

1. Exceptions to the above rules.
2. Words not included under above rules.
3. The accented syllable.

SPELLING HELPS.

Three classes of words need especial attention :—

1. Words ending in y, preceded by a consonant, —y is changed to i when ed, es, er is added.

2. Words ending in a consonant preceded, in order, by a vowel and a consonant,—

The final consonant is doubled when a syllable is added.

3. Words in which final e is dropped when a syllable is added. Also, teach common exceptions.

LANGUAGE.

The following outline is composed largely of suggestions regarding material to be used as a basis for language study. The basis or thought element is the most important in language teaching. If children are induced to think and encouraged to express their thoughts freely and abundantly and in the best available English they will acquire the habit of using good English.

Technical instruction should be given when needed to enable the child to express his thought adequately. A course of language instruction based upon technical points arbitrarily selected by the teacher stores the child's mind with unused matter and fails to meet his most vital needs.

Power to use language is acquired by its use. All language used should be correct in all respects.

The child's thought determines its form. This is at first simple, and gradually increases in complexity with advancing age and growing knowledge ; hence, new difficulties will continually arise which need to be met by proper explanation and practice at the time ; for example, in regard to the use of punctuation and capitals. The child first expresses himself in short, disconnected sentences, repeating subject and object. Punctuation for such expression is very simple. As conjunctions and pronouns are introduced to make the compound sentence, somewhat more elaborate punctuation is required. Later, with the use of the complex sentence, which is naturally employed to express more complex thoughts, other rules of punctuation are required, and should be given as needed. To give rules for punctuation and then compose exercises to illustrate them before the child has need of them for the natural expression of his thought is beginning at the wrong end and working backwards.

If no attempt is made to force technique upon pupils before it is needed, teachers will find that the difficulties have been greatly reduced in number and can be readily classified. As difficulties arise and definite instruction is needed, such instruction should be given and repeated until the points are made perfectly clear and right habits started.

Hyde's Language Lessons and the Language Charts will be found useful in furnishing material for the necessary drill.

In the following outline the suggestion that certain technical points be emphasized in certain grades does not mean that they are to be ignored in other grades, but implies that, in the average school, teachers will find need for emphasizing these points in the grades indicated.

Teachers will find that the best material for language work is to be obtained from the other subjects in the curriculum, especially nature study, literature, history and geography. At least one period a day in all grades above

the First, should be devoted to writing about matters of interest to the children. There should be daily class criticism of the work produced by the children. Whenever the necessity arises for the explanation of a technical point, that explanation should be given in a definite lesson. The correct forms should be impressed upon the children by their use, and not by referring to the incorrect forms; for example, the incorrect forms of "lie" and "lay" should be remedied by giving the correct forms of the verb in use, not by a discussion of both verbs, which tends to increase the confusion.

FIRST GRADE.

Writing and building of new words in reading lessons. Development of words and their proper use in sentences, both written and oral. Talks and lessons upon animal and plant life. (See outline.) Lessons suggested by the seasons, with their attendant phenomena. These talks may be based upon or crystallized into some beautiful selections of poetry for memorizing.

The songs of the day should, as frequently as possible, be in harmony with the thought of the reading and language lessons of the day. In familiar conversation with the children, the teacher cannot fail to find opportunity for correcting ungrammatical expressions and faulty articulation, while at the same time she assists them to help each other.

Development of the thought of new reading lessons and description of pictures in readers and language books and charts. This work is all incidental to reading, and the teacher will need to exercise judgment in selecting topics and pictures.

Simple oral and written topics suggested by these and kindred topics.

Memory selections and fairy stories.

Talks on the human body once or twice a week. Personal cleanliness.

In this and all grades the correct use of capitals and marks of punctuation should be required in all cases.

SECOND GRADE.

Development of the words and thoughts of the reading exercises. The use of new words in sentences. Word building.

Lessons on plant and animal life.

These topics should be connected with the kindred subjects in the reader, and written lessons in language should be used, when practicable, as reading exercises.

Lessons on the human body.

Study of reading topics.

Dictation lessons.

Memory selections.

It is well in this grade to induce children to combine their simple statements into compound statements by the use of simple connectives and personal pronouns. Give careful attention to the use of the forms of inflected words which the children employ.

THIRD GRADE.

Sentence building and the use of the elliptical sentence.

Drill in the correct use of words.

Word building.

In this grade children can be induced to still further combine their independent statements into compound sentences, and in some instances by the use of the relative pronouns into complex sentences.

Give no technical grammar, but simply see that they use properly these more complicated forms.

Material for daily class lessons :—

Memory gems.

Stories of heroes.

Literature taken from the readers.

Nature study.

Physiology as suggested in outline.

Geography as suggested in outline.

FOURTH GRADE.

Continue the work of the Third Grade in sentence construction and in the correct use of sentences of different

kinds in the daily written work, taking care that children use correctly such phrases, clauses and connectives as their needs require them to use.

Material for language lessons :—

Reproduction of historical stories.

Stories from Homer.

Imaginary journeys.

Stories from literature.

Descriptions of flowers and other objects of nature study.

Reproduction of studies in geography; as, How Cotton Grows, The Story of Lumbering, Where We Get Our Sugars, Manufactures of Newark.

Physiology as per outline.

These compositions may often be put in the form of letters, properly addressed.

Encourage freedom and independence of expression rather than the following of exact outlines.

FIFTH GRADE.

Continue the technical work suggested for the Third and Fourth Grades as the need becomes apparent.

Give much writing upon varied topics, especially encouraging freedom of expression.

Except upon rare occasions, avoid the use of definite outlines, but in class give corrections of forms used.

Encourage the child to use as large a vocabulary as possible.

Introduce word study to show the real meanings of words.

Vary the forms used as letters, compositions, newspaper paragraphs, debates.

Material for daily language lessons :—

Topics taken from history.

Biographies of heroes.

Mythological tales.

Accounts of imaginary journeys in connection with geography and history.

Reproduction of stories from literature.

(Do not allow children to reproduce poems in their own prose. Accustom children to the best style by the reading

of good authors, and do not allow them to express the thoughts well expressed by the author in paraphrase.)

Description of objects and fanciful sketches in connection with nature study.

Physiology.

Simple business letters,

SIXTH GRADE.

Continue and enlarge upon the work laid down for the Fifth Grade,

Material for language lessons :—

Stories from history.

Various subjects occurring in geography.

Tales found in literature.

Physiology.

Business letters.

The written exercises in this grade should take a variety of forms, as letters, essays, stories, fanciful sketches, magazine articles, newspaper paragraphs.

Some attention should be given to simple division into paragraphs.

GRAMMAR.

Formal grammar may be introduced into this grade for the first time, but it should be limited to the simplest matters. At the expiration of the year the children should be able to recognize the various parts of speech and the simplest forms of inflection.

In the "B" Class this study should be limited to nouns, adjectives and pronouns.

In the "A" Class it should be extended to the other parts of speech. Formal grammar lessons should not occur more often than once a week.

SEVENTH GRADE.

Continue the work in language, encouraging full and free expression.

Articles on topics connected with history.

Sketches of characters in books read in connection with history.

Synopsis and review of the books read in connection with school work.

Fanciful sketches and descriptions in connection with nature study.

Descriptions of journeys and other articles based on topics in geography.

Letters of invitation, acceptance and regret.

Business letters.

Topics based upon physiology.

Give instruction in paragraphing.

" B " SEVENTH.

Definite, careful instruction in formal grammar should begin with this grade.

The unit of the work is the simple sentence.

Pupils should master the simple sentence thoroughly and be able to recognize subject, predicate, object and other elements, and should be drilled upon paradigms and inflectional forms as needed.

" A " SEVENTH.

With the simple sentence still as a unit, make a more extended study of nouns, pronouns and adjectives.

Treat fully adverbs, appositives, predicate nominative.

Continue work upon paradigms and inflectional forms.

Grammar lessons three days in the week throughout this year.

EIGHTH GRADE.

Continue language work with more and more attention to technique.

Call attention to figures of speech and points of rhetorical excellence, and urge their use in pupils' work.

Discussion of historical topics

Sketches of characters in books read in connection with history.

Reproduction of stories from literature.
 Synopsis and review of books read.
 Fanciful sketches and descriptions in connection with
 nature study.
 Advertisements, applications and business letters.
 Business forms.
 Physiology.

"B" EIGHTH.

The compound sentence. A careful study of its construction.
 Analysis of simple and compound sentences.
 Study of verbs and phrases.

"A" EIGHTH.

Complex sentence. Study of its construction.
 Analysis of simple, compound and complex sentences.
 Clauses, relative pronouns and other connectives.
 Grammar lessons three times per week throughout his year.

SPELLING.

FOR ALL GRADES.

The spelling lessons are to be upon words used by the children in some connection. There must be every day a formal spelling lesson upon words selected. The list of words should be selected from the various lessons, including words misspelled by the children in any written exercise.

In the primary grades these words should be classified by the teacher. Lists of words given should, in so far as possible, be preserved for review. New words occurring in any lesson which the children are not able to read at sight or by spelling should be placed before them at once, and the pronunciation clearly given *with the division of the words into syllables*. In all grades, particularly in the primary, sight spelling is a most valuable exercise, and if conducted with

care and sufficient frequency, will in many cases prove almost sufficient for the instruction in spelling.

In formal spelling, from the outset children should learn to divide into syllables. The sounds of the letters should be taught as suggested in the outline for phonetics accompanying the course in reading, but of more value than all special drill is the correct spelling of all words in all written exercises. In one sense, every lesson is a language lesson and a spelling lesson.

Children should from the first be taught to use the dictionary. They should be instructed never to write a word unless they are sure of its spelling, but to look up the proper spelling before using.

There is no one method by which spelling may be taught. Teachers must see to it that all the methods indicated above are employed. In the Fourth Grade the use of the spelling book is provided for review purposes.

GEOGRAPHY.

Geography is the study of the earth as the home of man. It is now generally admitted by the best teachers that the human element should be made most prominent in the teaching of geography in the schools. The study of physical geography gives a proper understanding of the earth as related to the history of the human race, but this relation, and not the physical geography, is the important part of geographical instruction, hence this subject must be closely related to history and to the present social conditions if its chief value is to be conserved.

The literature of the school course and the nature study should both be closely related to the geography. For children, especially in the lower grades, political geography, except in its broader and more conspicuous features, is the least important branch of geographical study. In order that geography may interest children, its teachings must be real. The relations between the people who live upon

the earth and their homes must be made clear and vital by the teacher.

In the First and Second Grades this study is to be carried on, not independently, but in connection with nature study and language.

"B" CLASS, FIRST GRADE.

Study of plants and animals and natural phenomena, as forms of water and other features suggested by the outlines of nature study.

Observing weather.

Making Calendars.

"A" CLASS, FIRST GRADE.

Work of "B" Class continued.

Direction of winds.

Points of compass.

The child is making the acquaintance of the world.

"B" CLASS, SECOND GRADE.

Study of plants and animals.

Natural phenomena.

Calendar work.

Currents of air. Winds.

Relation of wind and weather.

Drawing to scale.

Observations to be made from school room windows and out of doors.

School yard and field excursions.

"A" CLASS, SECOND GRADE.

Work of "B" Class, continued.

Zone studies.

Sand maps of local features.

"B" CLASS, THIRD GRADE.

Calendar work.

Study of natural phenomena extended to objects from foreign countries.

Soil making.

Erosion.

Rocks.

Drawing to scale.

Relief maps.

"A" CLASS, THIRD GRADE.

Work of "B" Class continued.

Forms of land and water.

Local geography and history.

Physical features of Newark and vicinity.

River and mountain; how formed and uses.

How and why people travel.

Stories of the early settlements in New Jersey and New York with geographical reasons.

"B" CLASS, FOURTH GRADE.

Some study of the world as a whole suggested by imaginary journeys around the world in different directions.

Continents and oceans.

Our relations to different continents—historical and commercial.

A little about the people who have lived upon them.

Zones of heat and cold.

Local observations and field lessons with drawing to scale of such familiar places as the school yard, acquainting the child with the use of the map.

The study of North America. Its main features, chiefly physical. As to great mountain ranges and river systems, acquainting the child with geographical terms through local instances.

Begin the use of the text book.

"A" CLASS, FOURTH GRADE.

Continue local study and field lessons for the sake of acquainting the child with geographical nomenclature and ideas.

Study of South America and of Europe—main physical features; relations, commercial and otherwise, to us.

"B" CLASS, FIFTH GRADE.

The United States and Canada. Study somewhat more in detail as related to history, emphasizing physical features, occupations, productions, means of travel.

Make the study as picturesque as possible.

Use as much literature as possible.

In studying the United States by sections, consider the natural divisions based upon physical features rather than the artificial and arbitrary ones given in most geographies.

"A" CLASS, FIFTH GRADE.

Asia, Africa and Oceanica.

Study physical features—drainage, river systems, mountains, commercial relations, character and occupations of people, government, political divisions in the large.

In considering productions, treat especially of those which have commercial bearing upon this country.

"B" CLASS, SIXTH GRADE.

In this grade pupils should begin to study geography more intensively. Ordinarily a larger text book is here introduced. The children are approaching the age when it becomes better for them to treat a few subjects thoroughly than to discuss many in a cursory manner.

Physical features of the earth.

First—Of the earth as a whole.

Second—Of the grand divisions and countries, including such subjects as great mountain ranges, the continents and their relations to one another, the great river systems, coast outlines.

The free use of the globe is essential.

Children should make relief maps in sand, clay, papier-mache or other material.

At the end of the term pupils should have a pretty clear notion of the earth as a sphere and of the chief variations of its surface.

"A" CLASS, SIXTH GRADE.

The political geography of the world.

After the general view obtained in the "B" Class, pupils are ready to study the great political divisions by which people of different races and nationalities have divided the surface of the earth among themselves.

This should be a study of large political divisions, rather than of small ones, but should include the chief cities, the causes of their foundation and of the development of different nations; should treat of the habits and customs of peoples, and as the work of the "B" Class is intended to give the child a reasonably clear conception of the surface of the earth, so this work should give him a reasonably clear conception of the peoples who live upon it, as related to it, both affecting and affected by their physical environment.

"B" CLASS, SEVENTH GRADE.

The United States in sections as indicated for the entire country in the outline for the Fifth Grade.

This work should be done almost wholly in connection with the study of the literature and history of the United States.

As the history requires reference to sections and places, geographical facts relating to them should be carefully noted.

"A" CLASS, SEVENTH GRADE.

The United States by states and territories.

This also should be mainly in connection with history and literature; particularly does the history of the growth of the country furnish opportunity for the best study of geography.

Physical features should be clearly brought out as related to the growth of various industries, the rise of the states and the varying character of the people.

During this grade the separate study of geography should not occupy more than two lessons per week.

Commercial geography.

"B" CLASS, EIGHTH GRADE.

Pupils of this grade should receive a clear notion of the lines of commerce that bind the various portions of the world together, with the reasons, natural and political, for their establishment.

It will necessitate a certain amount of review of physical geography, and will deal largely with routes of travel, means of communication, harbors, rivers and cities.

It will touch upon national characteristics and prejudices. It will deal with obstacles to traffic as well as with aids.

"A" CLASS, EIGHTH GRADE.

Astronomical geography.

During this term the pupils study the earth as a part of the solar system, and the effect of its relation to the rest of the system upon itself and its inhabitants.

Treat briefly the geological history of the earth.

The motions of the earth.

Causes of day, night, seasons, tides, currents, winds and other effects of the earth's relation to the planetary system.

Treat also of the effect of these various conditions upon the races of men living in different parts of the world and in a greater or less degree subject to them.

The formal study of geography should not occupy more than two periods a week during this year.

HISTORY.

This subject should be studied in connection with geography in order to make the study of geography real. Places should be considered in relation to people who have lived or are living in them.

FIRST, SECOND AND THIRD GRADES.

Stories of heroes, selected by the teacher and told to the children of different grades.

These can be used largely as a basis for language work.

There should be stories from ancient history, mythology mediæval times and modern times.

Particularly should stories be used drawn from the history of this country and inculcating patriotism.

It is well to group such stories about national holidays, and other suitable periods of celebration.

"B" CLASS, FOURTH GRADE.

Stories of the discoverers and explorers of North America, such as the Early Norse Sea Rovers, Columbus, the Cabots, Amerigo Vespucci, Carteret, Henry Hudson, De Soto, Marquette and others.

Many such stories can be found in Readers.

"A" CLASS, FOURTH GRADE.

Stories of the explorers of South America; for example, Cortez.

Stories of ancient Greece and Rome and other European peoples.

"B" CLASS, FIFTH GRADE.

Stories of the early settlers of the United States; for example, the Puritans, Quakers and Virginians.

Study of Indian habits and customs.

Use Eggleston's First Book in American History.

"A" CLASS, FIFTH GRADE.

Historical tales of the East.

Bible stories.

Stories of the great nations of Asia.

Stories of Egypt.

Stories of the great migrations.

Much of the reading matter of this grade should be selected with reference to these topics.

"B" CLASS, SIXTH GRADE.

Study of United States history three days in the week, using text book for reference.

The following topics are suggested :—

Early discoverers—Columbus, the Cabots, Vespucci, Magellan.

Explorations and settlements.

Raleigh's expeditions to Virginia.

Two days in the week general history :—

Stories of Ancient Greece and Rome.

" A " CLASS, SIXTH GRADE.

Suggested topics :—

Virginia.

Settlement of Jamestown.

Captain John Smith.

Starving time.

Pocahontas.

Great Charter.

First homes.

Bacon's Rebellion.

Massachusetts.

The Puritans.

Life in Europe.

Voyage to America.

First winter.

The Indians.

Miles Standish.

Mode of life.

Massachusetts Bay Colony.

Roger Williams and Rhode Island.

William Penn and Pennsylvania.

Maryland and the Catholics.

Georgia and the debtors.

The Dutch and English in New York and New Jersey.

These lessons should deal with the picturesque features of early colonial life, and should be studied in close connection with literature and geography.

Two days in the week general history.

Stories of the Norsemen.

Stories of the Crusades.

Stories of Chivalry.

Stories of the development of modern nations.

"B" CLASS, SEVENTH GRADE.

United States history.

Review explorations and settlements.

Topics suggested :

English influence on the various colonies, Dutch influence, French influence, Spanish influence.

French and Indian War.

Revolutionary period.

Causes of dissatisfaction.

Boston Tea Party.

Patrick Henry.

Benjamin Franklin.

Thomas Jefferson.

George Washington.

Alexander Hamilton.

Arnold and Andre.

Declaration of Independence.

Lafayette.

Battles and campaigns of the Revolutionary War.

Lexington.

Long Island.

Retreat across New Jersey.

Trenton.

Philadelphia.

Valley Forge.

Monmouth.

Burgoyne.

Yorktown.

The building of the Constitution.

"A" CLASS, SEVENTH GRADE.

United States history continued.

Topics suggested :

Mexican cessions.

Slavery.

American statesmen and orators.

Clay.

Webster.
 Calhoun.
 Development of the government.
 Causes of the Civil War.
 Heroes of the Civil War.
 Lincoln.
 Grant.
 Sherman.
 Sheridan.
 Lee.
 Important battles and campaigns of the Civil War.
 Peninsula.
 Mississippi.
 Gettysburg.
 Sherman's March.
 Wilderness.
 Virginia.
 Appomattox—Close of the Civil War.
 The growth and work of the navy.
 The South.
 Before the War.
 The Confederacy.
 Reconstruction.
 Growth of the United States—
 Territory.
 Population.
 Wealth.
 Influence.
 Literature.
 Science.

EIGHTH GRADE.

Three days in the week English history by topics as outlined.

One day in the week United States history reviewed by topics.

One day in the week civics.

"B" CLASS, EIGHTH GRADE.

English history topics suggested :

The Normans and William the Conqueror.
 Feudalism.
 Origin.
 Ceremony.
 Decay.
 Chivalry.
 Knights.
 Tournaments.
 Crusades.
 The growth of constitutional liberty.
 Magna Charta.
 House of Commons.
 Henry V. and the Battle of Agincourt.
 Charles VII. and Joan of Arc.
 The Reformation.
 The Age of Elizabeth.

"A" CLASS, EIGHTH GRADE.

The Puritans in England and America.
 Oliver Cromwell.
 The relations of Louis XIII., Cardinal Richlieu and Louis
 XIV., all of France, with England.
 George II. and Louis XV.
 The French and Indian War in America.
 George III.
 American Revolution.
 French Revolution.
 Second War with England.
 Battle of Waterloo.
 Battle of Trafalgar.
 The Victorian Age.
 United States and England.
 Heroes compared :
 Wellington, Nelson.
 Grant, Lincoln.
 Statesmen compared :
 Webster, Gladstone.

PHYSIOLOGY AND HYGIENE.

Simple oral lessons in the primary grades, and in the grammar grades written exercises in connection with language work tending to the proper care of the body. This study should not be analytical, nor should it dwell upon possible diseases, tending to produce a morbid state of mind in the children, but it should hold before them as a model the healthy human body as the home of the healthy human soul, and should lead to such wholesome care regarding personal habits as the needs of the body require.

FIRST GRADE.

Personal cleanliness.

SECOND GRADE.

The same as the First Grade, and in addition some attention to characteristics and uses of the more prominent organs of the body.

THIRD GRADE.

As in the Second Grade, special attention being given to cleanliness of the teeth and to the cigarette and candy habits.

FOURTH GRADE.

Simple rules for exercise, rest, sleep, eating, care of the eyes.

FIFTH GRADE, "B" CLASS.

Organs and processes of digestion, simply treated, with the effects of stimulants and smoking thereon, especially among children.

FIFTH GRADE, "A" CLASS.

Foods—Necessity, kinds, quantity, cooking, chewing, etc.

SIXTH GRADE, "B" CLASS.

Absorption and circulation.

SIXTH GRADE, "A" CLASS.

Respiration and perspiration.

SEVENTH GRADE, "B" CLASS.

Skeleton—Structure, uses, hygiene, growth, repair.

SEVENTH GRADE, "A" CLASS.

Muscular System—Structure, uses, hygiene, growth, exercise.

EIGHTH GRADE, "B" CLASS,

The general nervous system—hygiene, growth, exercise.

EIGHTH GRADE, "A" CLASS.

Special senses—sight, smell, taste, hearing, touch.

Throughout the grades such attention to the uses of stimulants and narcotics as is required by law and wise for the children should be given. The main aim of the work should be positive rather than negative,—the securing of good habits through intelligent interest.

WRITING.

The vertical system is to be used in all the grades of the schools. Much attention is to be given to all writing. The writing books, while they are to be carefully used, are not the only nor the chief reliance. Children's writing should be judged, not by what they write in the writing books, but by their ordinary written papers; hence, teachers in all grades are expected to give especial care to the penmanship of all written work, and to use the writing books as a means to this end.

FIRST GRADE.

Use the blackboard largely for full arm, free movements.

For seat work, the paper pad and a soft, blunt pencil should be used.

The writing should be the ordinary writing required for the language work.

SECOND GRADE.

Nos. 0 and 1, Graphic Writing Book, shorter course.

THIRD GRADE.

Nos. 0 and 2, Graphic Writing Book, shorter course.

FOURTH GRADE.

Nos. 2 and 3, Graphic Writing Book, shorter course.

FIFTH GRADE.

Nos. 4 and 5, Graphic Writing Book, shorter course.

SIXTH GRADE.

Nos. 4 and 5, Graphic Writing Book, longer course.

SEVENTH GRADE.

Nos. 5 and 7, Graphic Writing Book, longer course.

EIGHTH GRADE.

No. 7, Graphic Writing Book, longer course.

DRAWING AND MUSIC.

Drawing and Music according to the instruction furnished from time to time by the supervisors of these subjects.

NATURE STUDY.

SELECTION OF SUBJECTS.

Each subject for class study has been selected with reference to the following characteristics :

Its interest to the child.

Its disciplinary value.

Its practical value. (Usefulness to man.)

Its æsthetic value.

The ease with which it may be presented objectively.
 Its intimate connection with the other studies of the course.

The place the subject holds in the scheme of creation.

ANIMAL STUDY.

The study of animals as outlined proceeds from the study of typical members of the vertebrates in the first year, through the invertebrates in succeeding years, down to the study of the lowest forms, in the fifth year.

This order is found to be the most logical, as the higher animals present the most features referable to the child's own body. From this study of animals most like himself, he progresses gradually, forming correct concepts, step by step, of life in its various manifestations.

In all instances the live animal is the first studied. Its life in the schoolroom is watched, and the child thus gains a power of observation and an intimate knowledge not obtainable from the stuffed specimen or picture alone.

The specimens selected represent types of the great divisions of the Animal Kingdom—the mammal, the bird, the fish, the insect, the crustacean, the mollusk, the polyp and the lowest forms.

Field excursions are to be made at certain times indicated on the programme, that the child may see Nature at work, learn to love and interpret her in her natural environment.

The Aquarium in New York furnishes an opportunity rarely given us for observing life in the water. Excursions are planned to coincide with the child's study of fish, crustacean, sea anemone and coral.

The Museum of Natural History affords a good chance for comparative work, and excursions to this are planned for classes in bird study, felidæ, etc.

In the Preparation for Winter and Signs of Spring the lives of many animals, not included in the list for special study, furnish us with many additional points of interest. The beaver, the muskrat, the frog, the fly, etc., are ex-

tremely interesting Fall and Spring studies in relation to the periods of rest and awakening.

The method to be pursued with regard to specimens for detailed study should be the invariable one of a specimen for each child or one large enough for the children of the group to see distinctly the parts studied.

By thus taking the child, as it were, into the confidence of "bird and beast," he gains a power of interpretation, a value of form as modified and adapted to environment, and a sympathy with all animal life, even the lowest, so called.

PLANT STUDY.

The same principle of the study of Life is to be pursued with the plant as with the animal.

Not names, but the living processes of the plant life are to be studied; not dried specimens for study, but the wealth of beauty of the plant alive and responding to every influence.

Certain subjects have been chosen as those best suited to give the child an opportunity for observation and the key to the world around him.

The subjects selected are interwoven with the work outlined for Preparation for Winter and Signs of Spring, so that while the child has glimpses of the plant world busily at work, as a whole, he is given the opportunity for the special study of parts.

Starting with the study of some plant as a whole, he proceeds gradually through germination, formation, care and protection of buds, study of typical trees, the ripening of seed vessels, the distribution of seeds, fertilization, cross and self-study of stem, leaf and root, (deferred until after the study of the flower, the processes being more obscure), the last of all, the study of the fern, mosses, etc.,—the cryptogams.

With each of these topics an excursion is planned. On these excursions much of the material for class study may be collected.

The course completed, the child should have an increased power of observation, a working knowledge of the pro-

cesses of plant life, the beauty of adaptation of means to end, and an added love for plant and flower.

WEATHER OBSERVATIONS.

To consist in the first grade of the simple daily observations of the weather, taken at the beginning of school, and the making of a chart filled in with pictures mainly.

Sunshine.

Clouds.

Rain.

Fog.

Snow.

Short talks with the children about the weather. In the spring, spring rains, softening of earth, warmer days, etc., aid to plant world.

Throughout the succeeding years, the daily record to be kept up, using words as soon as possible, and enlarging chart by progressive steps, year by year, including record of temperature, direction of wind, date and time of observation, etc.

This record to be accompanied by study of snow and other forms of water, effect of frost on rocks, erosion and deposition, points of compass, indication of weather vane, thermometer, the sun and other phenomena.

In the fifth year, the study of meteorology, thus crystallizing the observations of the years preceding.

CHEMISTRY AND PHYSICS.

The course in chemistry and physics begins with the study of simple phenomena, as the solution, evaporation, etc., of liquids. Preceded as it is, by the study of meteorology, in

which similar phenomena with regard to water have been studied, the course proceeds from this to crystallization, etc.

Each student is to perform the experiments in the formation of crystals from solution. A study of crystallographic forms follows. In this each one makes the crystal axes and models.

The second part of the course consists of the introduction to Chemistry proper. Physical and chemical changes, atoms, molecules, etc.

Next follow simple experiments in the chemistry of the air, fire, water. It is desirable that as soon as possible a laboratory shall be fitted up in each grammar school, that the students may perform these experiments for themselves. Until then, the course pursued will be the performing of the experiment by the teacher at the desk, the careful description by the student of the apparatus used, the process, the resulting phenomena, and the discussion of the principle involved.

The apparatus used to be the simplest consistent with the performing of the experiment, and as largely as possible, that which each student may make for himself.

I.

PREPARATION FOR WINTER. Excursion (Field), FALL.

RODENTS. Rabbit, squirrel, rat, FALL.

FISH. (Salt water.) Excursion to N. Y. Aqua, FALL.

CAT. WINTER.

GERMINATION, Peas and beans, SPRING.

BIRD. Pigeon or canary. Duck, swimming birds, SPRING.

SIGNS OF SPRING. Excursion (Field), SPRING.

FIRST GRADE.

PREPARATION FOR WINTER.

ANIMALS.

By squirrel,
rabbit,

bird,
 caterpillar,
 common animals,
 horse,
 cow,
 dog,
 man,

PLANTS.

Study of some plant as a whole.
 Care and prep. of buds.
 Seed forming. The mission of the flower.
 Roots. Garden plants dying to ground, living at root.
 Fallen leaves. Their mission.
 Pressing and mounting leaves.

WEATHER CHART. Pictured daily.

SIGNS OF SPRING.

ANIMALS.

Squirrel.
 Rabbit.
 Bird.
 Return. Nesting.
 Caterpillar. Butterfly.
 Common animals.
 Shedding of coat.
 Man.

PLANTS.

Opening of buds. Twigs in schoolroom. Pussy willow.
 Germination of seeds.
 Sprouting of all things.
 Spring flowers.

WEATHER.

Chart.
 Spring rains.
 Softening of earth.
 Warmer days.

SECOND GRADE.

PREPARATION FOR WINTER. Excursion (Field) FALL.
 CATERPILLAR. FALL.
 BIRDS. Review live bird. Wading, running birds, FALL.
 etc. Excursion to Museum and Park.
 BUDS. Horse-chestnut. Tree as whole first. FALL.
 FISH. (Fresh water.) WINTER.
 CAT FAMILY. Excursion to Museum. WINTER.
 GERMINATION. Use other seeds. SPRING.
 BUTTERFLY. SPRING.
 SIGNS OF SPRING. Excursion (Field). SPRING.

PREPARATION FOR WINTER.**ANIMALS**

Review work of first year.
 Beaver.
 Bear.
 Musk-rat.

PLANTS.

Review work of first year.
 Bulbs.
 Grass.

WEATHER CHART.

Chart on board. Daily record.
 The sun.
 Points of compass.
 Thermometer.

SIGNS OF SPRING.

ANIMALS.

Review work of first year.

Beaver.

Musk-rat.

Bear.

PLANTS.

Review.

Bulbs.

Spring flowers.

Collecting.

Pressing.

Mounting.

Nuts sprouting.

WEATHER.

Record.

THIRD GRADE.

PREPARATION FOR WINTER. Excursion (Field) FALL.

CATERPILLAR. FALL.

GRASSHOPPER. Excursion (Field). FALL.

EVERGREENS. CONIFERS. WINTER.

BUTTERFLY. SPRING.

BUDS. Maple tree as whole. Apple tree. SPRING.

Buds, flower and fruit. Excursion (Field).

FLOWER. Parts and uses. SPRING.

SIGNS OF SPRING. Excursion (Field). SPRING.

PREPARATION FOR WINTER.

ANIMALS.

Review.

Mud-turtle.

Frog.
Snail.
Snake.

PLANTS.

Fall planting.

WATER.

Snow. Ice.
Freezing. Frosts.
Expansion. Breaking of rocks.
Protection of snow to plants and animals.

WEATHER.

Chart.
Experiments with temperature of snow-banks, melting ice.

SIGNS OF SPRING.

ANIMALS.

Review.
Mud-turtle.
Frog. Observation of frog's eggs.
Snail.
Laying of eggs in aquarium.

PLANTS.

Review.
Spring flowers.
Planting.
Farmer, etc.

WEATHER.

Snow melting.
Full streams and resulting erosion and deposition.
Lingering snow.
Location. Why ?

FOURTH GRADE.

PREPARATION FOR WINTER. Excursion (Field)	FALL.
DISTRIBUTION OF SEEDS. Excursion (Field).	FALL.
GRASSHOPPER. CRICKET.	}
OTHER MEMBERS.	
CRUSTACEA.	}
CRAB, LOBSTER OR CRAYFISH.	
EVERGREENS. Other varieties.	WINTER.
Excursion (Field).	WINTER.
FLOWER. Parts and uses.	SPRING.
SIGNS OF SPRING. Excursion (Field).	SPRING.

PREPARATION FOR WINTER.

ANIMALS.

Review.
 Bee and other insects.
 Crayfish.
 Fishes.

PLANTS.

Review. Ripening seed vessels.
 Trees.
 Changing color of leaves.
 Location of sap.
 Calendar of changes.

WEATHER.

Chart.
 Review water.
 Glaciers.
 Icebergs.
 Avalanches.

SIGNS OF SPRING.

ANIMALS.

Review.

Bee.

Short trips from hive.

Sap and earliest spring flowers.

Other insects

Beetles under logs.

Flies.

Crayfish.

PLANTS.

Trees.

Fruit and flower buds.

Flowing of sap.

WEATHER.

Water.

Effect of spring on ice-floes, icebergs, etc.

V.

METEOROLOGY.

FALL.

SEA ANEMONE. Excursion to Aquarium.

FALL.

FERTILIZATION OF FLOWERS. (CROSS₁) FALL.

Nasturtium, etc.

CRUSTACEA. Other examples,

WINTER.

OYSTER AND OTHER MOLLUSKS.

WINTER.

PLANT. LEAF, ROOT, STEM.

SPRING.

METEOROLOGY.

SPRING.

VI.

ASTRONOMY. Excursion to look through telescope, FALL

FERTILIZATION. COMPOSITÆ.

FALL.

SEA ANEMONE AND CORAL.

WINTER.

Excursion to Museum.

PROTOZOA.	WINTER.
PLANT. LEAF, ROOT, STEM.	SPRING.
CRYPTOGAMS.	SPRING.
ASTRONOMY. TELESCOPE EXCURSIONS.	SPRING.

ASTRONOMY.

Sun.
Moon.
Planets.
Day and night.
Seasons.
World forming.

There are a number of gentlemen in the city who have telescopes, through whose courtesy we may be able to make occasional observations with our classes.

VII.

CHEMISTRY AND PHYSICS.

PART. I.

1. Evaporation.
Solution.
Condensation.
Distillation.
2. Crystallization.
3. Crystallography.

PART II.

1. Physical and chemical changes.
2. Atoms. Molecules. Chemical symbols. Elements.
3. Chemistry of the air.
Fire.
Structure of the candle flame.
Water.

VIII.

STUDY OF ROCKS.

I. Rock forming minerals.

Quartz.
Feldspar.
Mica.
Hornblende.
Calcite.

II. Rocks formed.

Granites.
Gneisses.
Schists.
Syenites.
Limestones.
Conglomerates.
Sandstones.
Shales.
Slates.
Lavas.
Trap.

III. Forces which formed rocks.

Study of water-built rocks,
fire-built rocks,
changed or metamorphic rocks.

IV. Geology of region around Newark.

V. Study of metals and their occurrence in Nature.

Excursions to field throughout entire course.

Sets of fifty specimens (inch square) of each stone for class work.

Collection of specimens by class.

HIGH SCHOOL. COLLEGE PREPARATORY COURSE.

MATHEMATICS.

First year—Algebra, 4 periods.

Second year—1st half, Algebra, 4 periods.

Second year—2nd half, Geometry, 4 periods.

Third year—1st half, Geometry.

Third year—2nd half, Geometry.

(Students who have completed the mathematics required for college preparation may elect some study instead of the Geometry for this term.)

SCIENCE.

First year—1st half, Zoology or Physical Geography, 4 periods.

First year—2d half, Physiology or Botany, 4 periods.

Fourth year—Physics, 4 periods.

LATIN.

First year—Latin Lessons and Grammar, 5 periods.

Second year—Cæsar and Latin Prose, 5 periods.

Third year—Cicero and Latin Prose, 5 periods.

Fourth year—Virgil, 4 periods. Roman History, 1 period.

GREEK OR GERMAN.

First year—

Second year—5 periods.

Third year—5 periods.

Fourth year—4 periods, Greek History, 1 period (for those taking Greek.)

ENGLISH AND HISTORY.

First year—6 periods.

Second year—6 periods.

Third year—English and Rhetoric, 4 periods. History, 2 periods.

Fourth year—English and American Literature, 4 periods.

Fourth year—1st half. English History, 3 periods.

Fourth year—2nd half. United States History and Civics, 3 periods.

FRENCH.

Third year—Elective.

Fourth year—Elective.

DRAWING.

Elective throughout the course.

GENERAL COURSE.

MATHEMATICS.

For three years same as college preparatory course.

Fourth year—Trigonometry and review, electives.

SCIENCE.

First year—As in college preparatory course.

Second year—1st half. Geology.

Second year—2nd half. Astronomy.

Third year—Chemistry, 4 periods.

Fourth year—Physics, 4 periods.

LATIN OR GERMAN.

Latin as in college preparatory course.

German,

First year—5 periods.

Second year—5 periods.

Third year—5 periods.

Fourth year—5 periods.

ENGLISH AND HISTORY.

Same as college preparatory course.

DRAWING.

One period throughout the course.

ENGLISH COURSE.

MATHEMATICS.

Same as general course.

ENGLISH AND HISTORY.

Same as general course.

SCIENCE.

First year—Science as in general course.

Second year—Science as in general course.

Third year—Science as in general course.

Fourth year—Science as in general course.

SPECIAL COURSES.

FIRST YEAR.

Book-keeping, Civil Government, etc., 5 periods.

SECOND YEAR.

Book-keeping, Commercial Law, etc., 5 periods.

THIRD YEAR.

Economics, 5 periods.

DRAWING.

Drawing, 1 period, throughout the course.

COMMERCIAL COURSE.

FIRST YEAR.

Algebra as in general course.

History and English as in general course.

German as in general course.

Book-keeping, Civil Government, etc., as in English course.

Drawing, 1 period.

SECOND YEAR.

Mathematics as in general course.

History and English as in general course.

Science as in general course.

German as in general course.

Book-keeping, Commercial Law, etc., as in English course.

Drawing, 1 period.

COLLEGE PREPARATORY COURSE—C. P. C.

Years.	Mathematics.	Science.	Latin.	German or Greek.	English and History.	Drawing. Elective.
First	$\frac{1}{2}$ Algebra .....4	Zoology or Physical Geography. 4	Latin Lessons.. 5	.....	English & History, 6	1
	$\frac{1}{2}$ Algebra .....4	Physiology or Bot'y 4	Latin Lessons 5	.....	English & History, 6	1
Sec'nd	$\frac{1}{2}$ Algebra .....4	.....	Cæsar & Prose..5	German or Greek Lessons..... 5	English & History, 6	1
	$\frac{1}{2}$ Geometry ..4	.....	Cæsar & Prose..5	German or Greek Lessons..... 5	English & History, 6	1
Third	$\frac{1}{2}$ Geometry ....4	.....	Cicero & Prose. 5	Anabasis & Prose, 5 or German....	Eng. & Rhetoric, 4 History..... 2	1
	$\frac{1}{2}$ Geometry ....4	.....	Cicero & Prose. 5	Anabasis & Prose, 5 or German....	Eng. & Rhetoric, 4 History..... 2	1
Fourth	$\frac{1}{2}$ .....4	Physics.....4	Rom'n Hist'y 1 Virgil..... 4	Iliad & Prose..... 5 or German....	Eng. & American 3 Literature... 3	1
	$\frac{1}{2}$ .....4	Physics .....4	Rom'n Hist'y 1 Virgil..... 4	Iliad & Prose..... 5 or German....	Eng. Literature. 3 U. S. History & Civics..... 3	1

French Elective Third or Fourth Year.

GENERAL COURSE.

First.....	As C. P. C... 4	As C. P. C..... 4	Latin as C. P. C. } or Ger 5	.....	As C. P. C..... 6	Draw. 1
Sec'nd { ½	As C. P. C... 4	Geology..... 4	Latin or Germ'n 5	.....	As C. P. C..... 6	Draw. 1
	As C. P. C... 4	Astronomy..... 4	Latin or Germ'n 5	.....	As C. P. C..... 6	Draw. 1
Third.....	As C. P. C... 4	Chemistry..... 4	Latin or Germ'n 5	.....	As C. P. C..... 6	Draw. 1
Fourth....	Trigonometry & Review. 4	Physics..... 4	Latin or Germ'n 5	.....	As C. P. C..... 6	Draw. 1

ENGLISH COURSE.

First.....	As C. P. C... 4	As General Course..... 4	Book-keep'g Civil Gov't, &c } 5	.....	As C. P. C..... 6	Draw. 1
Second.....	As C. P. C... 4	As General Course..... 4	Book-keep'g C'm'l Law, &c } 5	.....	As C. P. C..... 6	Draw. 1
Third.....	As C. P. C... 4	As General Course..... 4	Economics..... 5	.....	As C. P. C..... 6	Draw. 1
Fourth....	As G. Course 4	As General Course..... 4	Language (Elec) 5	.....	As C. P. C..... 6	Draw. 6

NOTE 1.—The numbers opposite each subject indicate the number of periods devoted each week to said subject.

COMMERCIAL COURSE—BOYS ONLY.

FIRST YEAR.

Algebra as in general course.

History and English as in general course.

German as in general course.

Book-keeping, Civil Government, etc., as in English course.

SECOND YEAR.

Mathematics as in general course.

History and English as in general course.

Science as in general course.

German as in general course.

Book-keeping, Commercial Law, etc., as in English course.

Drawing elective in both years.

NOTE 2.—Instead of some of the subjects assigned to the various courses, equivalents may, with the approval of the principal, be substituted.

NORMAL AND TRAINING SCHOOL.

NORMAL DEPARTMENT.

COURSE FOR FIRST YEAR.

FIRST TERM.	<p>Psychology. Theory and Practice of Teaching. Training School Practice—Primary Grade Work.</p>	<p>Literature, including the analysis of selections and studies of American and English authors. [This work to be done critically and supplemented by essay and general composition work by the pupil.]</p>	<p>Physical Geography on the basis of geographical and historical study and teaching. Music. Physical Culture. Drawing.</p>
SECOND TERM.	<p>Psychology. Theory and Practice of Teaching. Training School Practice—Primary Grade Work.</p>	<p>Literature, including the analysis of selections and studies of American and English authors. [The work to be done critically and supplemented by essay and general composition work by the pupil.]</p>	<p>Physiology and Hygiene as applied to the school room. Music. Physical Culture. Drawing.</p>
THIRD TERM.	<p>Psychology. Theory and Practice of Teaching. Training School Practice—Primary Grade Work.</p>	<p>Critical reading of Political Economy. To be accompanied by essay and composition work.</p>	<p>Lectures on the Science and Philosophy of Education and the Methods of Instruction to be continued through the year. Music. Physical Culture. Drawing.</p>

COURSE FOR SECOND YEAR.

FIRST TERM.	Moral Science. Theory and Practice of Training School Prac- tice—Grammar Grade Work.	History of Education, its theories, methods and literature. General history.	Literature as related to General History. Critical reading of Civil Governm't and Gen- eral History.	Lectures on the History, Philosophy and Science of Education and the Methods of Instruction. Botany. Music. Physical Culture. Drawing.
SECOND TERM.	Moral Science. Theory and Practice of Teaching. Training School Prac- tice—Grammar Grade Work.	History of Education, its theories, methods and literature. General History.	Literature as related to General History. Critical reading of Civil Governm't and Gen- eral History, contin- ued.	Lectures on the General Principles of School Management. Botany. Music. Physical Culture. Drawing.
THIRD TERM.	Moral Science. Theory and Practice of Teaching. Training School Prac- tice—Grammar Grade Work.	Review of the General Principles and Meth- ods of Teaching and School Management.	Literature, including selections from writ- ers in the Fine Arts and Poetry.	Lectures and discussions of educational works and educational ques- tions. Music. Physical Culture. Drawing.

In addition to the above course, each pupil in the Normal and Training School is required to spend at least eight weeks of each year in practical classroom work in the Training Department, under the special direction of the City Superintendent and Principal of the Normal and Training School.

